



SURVEYING THE NYMPHEA OF POMPEII AND HERCULANEUM

BY INTEGRATED GEOMATIC TECHNIQUES

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The poster show some results from a project started in 1999, within a collaboration established between the University of Bologna and the Archaeological Superintendence of Pompeii. In the frame of this project was activated a rigorous survey, by the integration of different geomatic techniques (GPS, Laser Scanning, Photogrammetry, Visual Reality), of the most significant nymphaea of Pompeii and Herculaneum; these are elements of remarkable archaeological and artistic value presenting various geometric characteristics and needing a very accurate description of the decorative apparatus, often entrusted to particularly complex and rich mosaics.

Different methods were adopted for the survey phase, depending on the typology of the objects, their location and logistic constraints. Photogrammetry has been the preferred technique for its characteristics (three-dimensionality, accuracy, color information, final products, etc.) and for its flexibility during the data collection process; in most cases non-conventional schemas has been adopted for image acquisition. Laser scanning was also tested, and of course conventional surveying by total station was needed for Ground Control Point measurement and for the establishment of local reference systems.

As the final result, a well defined set of products has been envisaged, all of these of course in digital form: 3D vector plottings, orthophotos, sections and profiles, surface models.

For the photogrammetric processing, different software platforms were used, depending on the expected products; the main work was carried out by high-end digital photogrammetric workstations with stereoscopic capabilities, but monoscopic systems were also used in non-conventional cases. The research involved the testing of procedures and algorithms for automatic surface generation by image-matching techniques. Specific procedures for point clouds management were also used for processing of lasers scanning data and for editing and manipulation of other data coming from a photogrammetric process.

The presentation shows some examples taken from different case studies.

